

# NSRL Commissioning

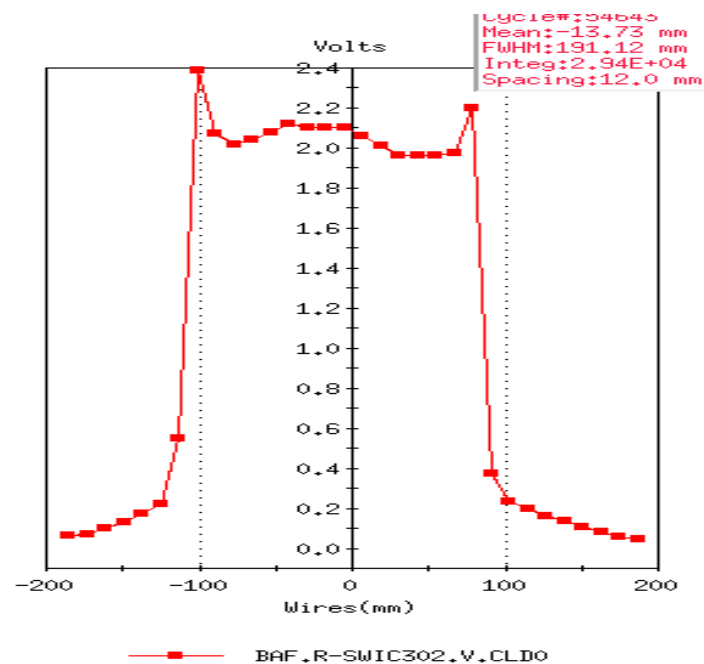
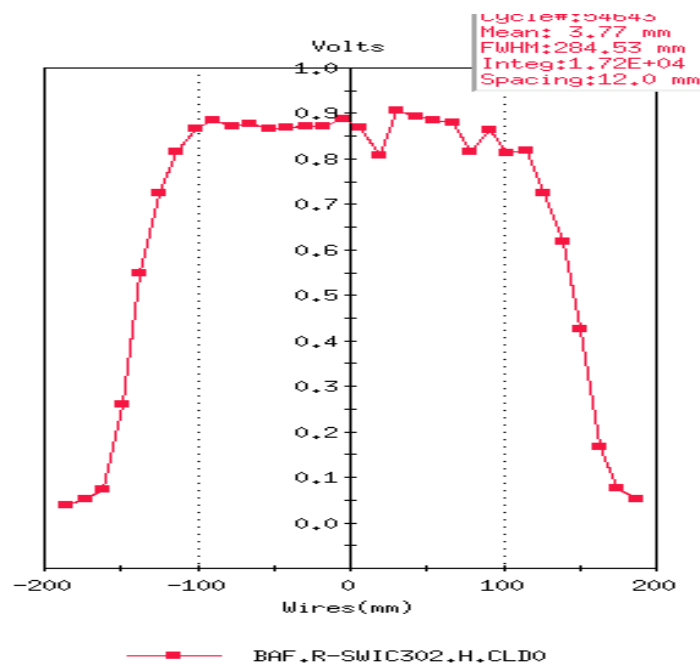
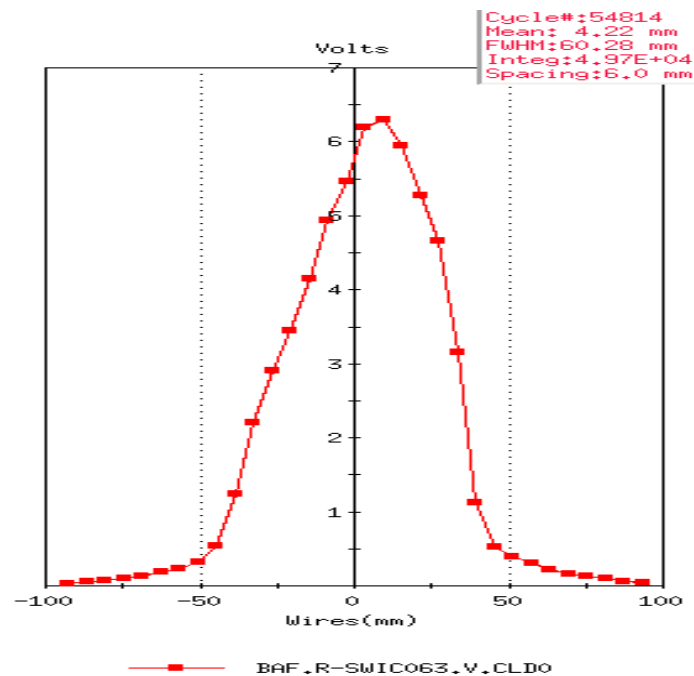
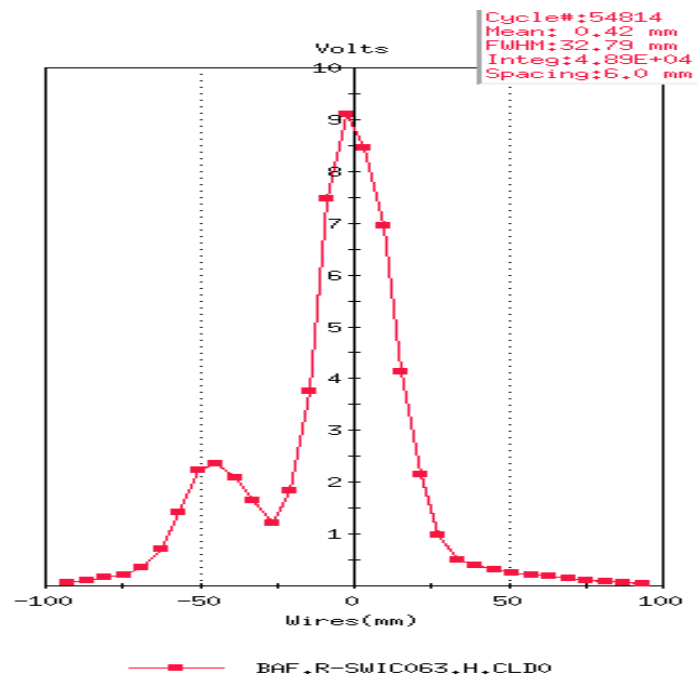
- ❖ Commissioning Goals.
- ❖ What has been achieved on beam delivery
- ❖ What has been achieved on dosimetry
- ❖ What is left to do

# Commissioning Goals

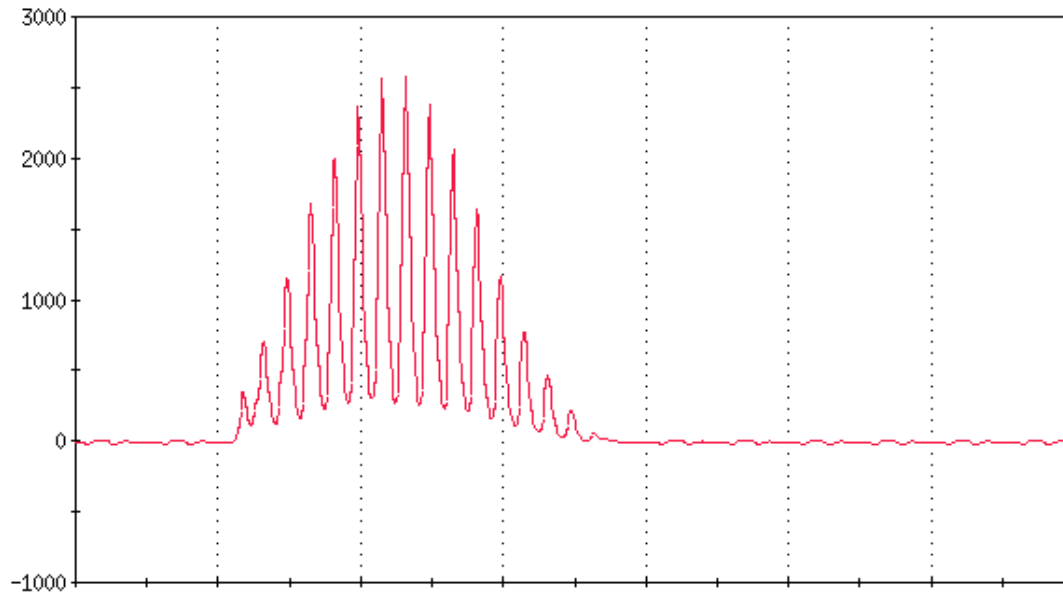
- ❖ Complete fault-studies.
- ❖ Extract from Booster and deliver to NSRL beam dump:
  1.  $^{12}\text{C}$  at 290 MeV/n.
  2.  $^{56}\text{Fe}$  at 1 GeV/n.
- ❖ Gain control over beam size and shape.
- ❖ Test all aspects of the dosimetry system:
  1. All new equipment installed, working and integrated into main system.
  2. Interface with accelerator working properly.
  3. All dosimetry routines working properly.

# Beam Delivery (So Far)

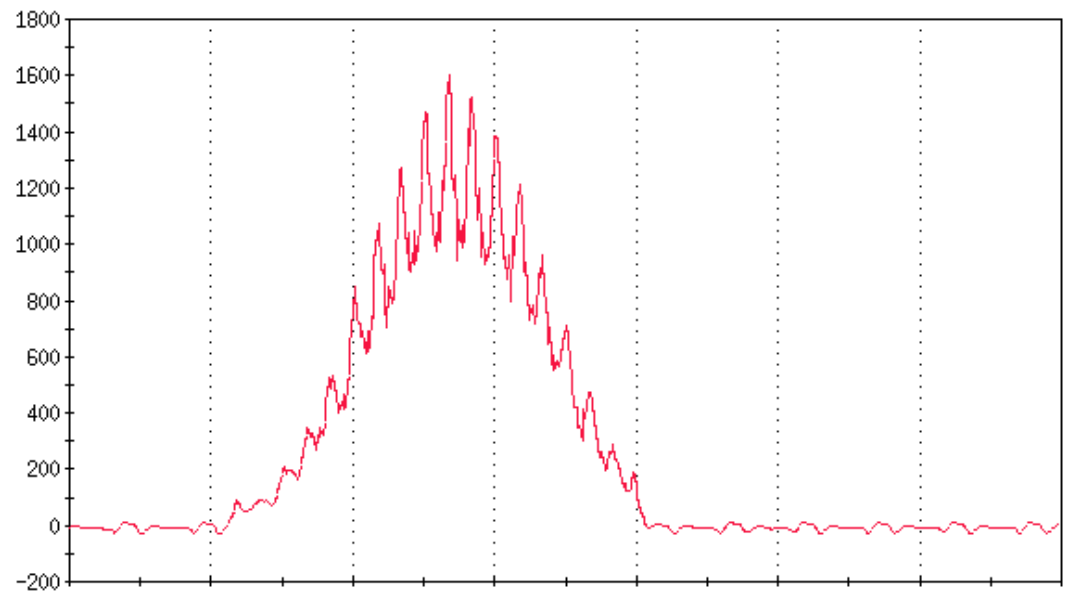
- ❖ Extracted and delivered:
  1. 2 GeV protons
  2. 520 MeV/n deuterons
  3. 280 MeV/n C
  4. 720 MeV/n Fe
- ❖ All beams delivered in both “square” and “round” modes (with and without octupole magnets).



# Beam Time-Structure



— Row 1: BAF.ION063\_ADC.FCN (count)

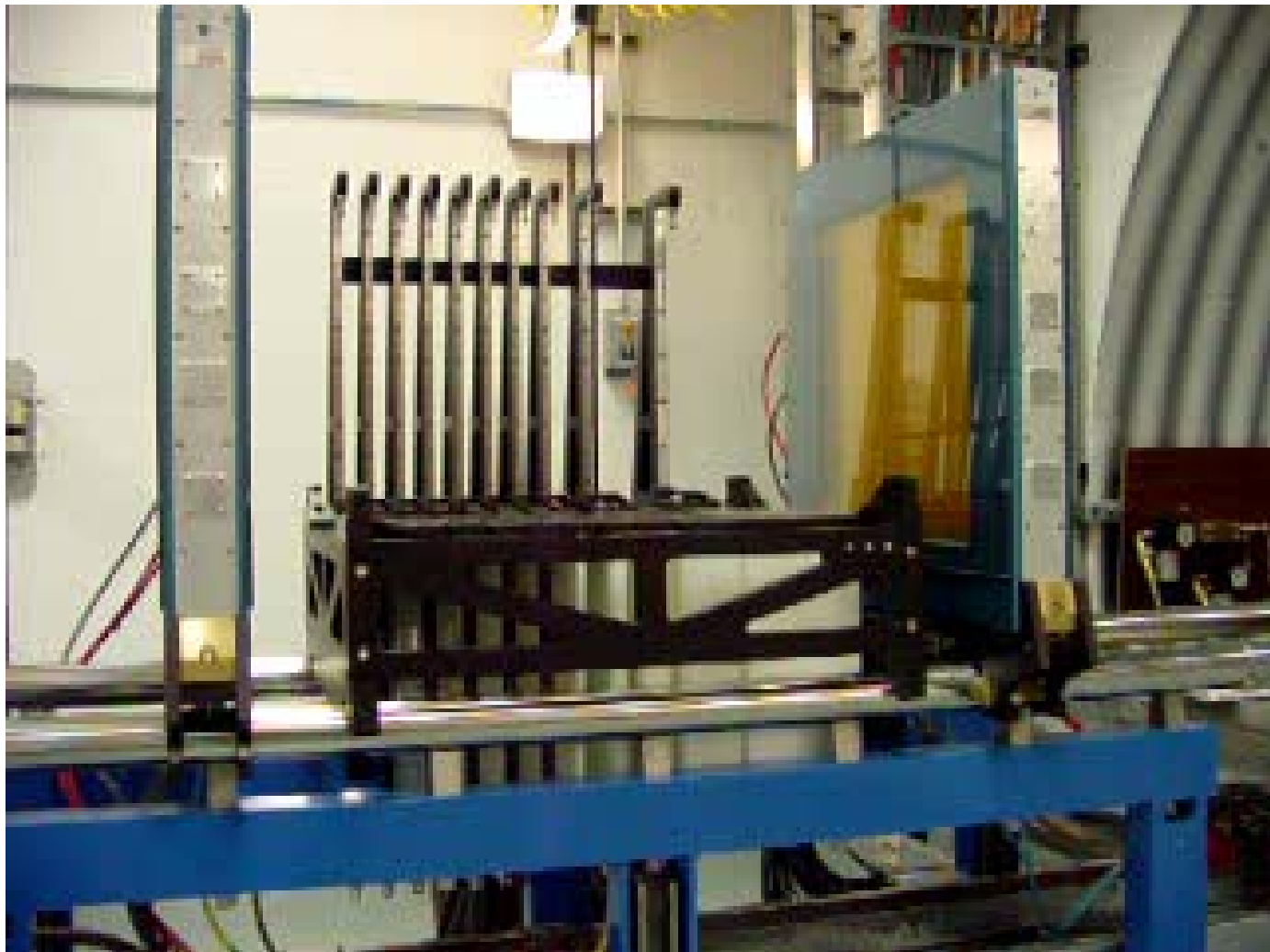


— Row 1: BAF.ION063\_ADC.FCN (count)

# Dosimetry (So Far)

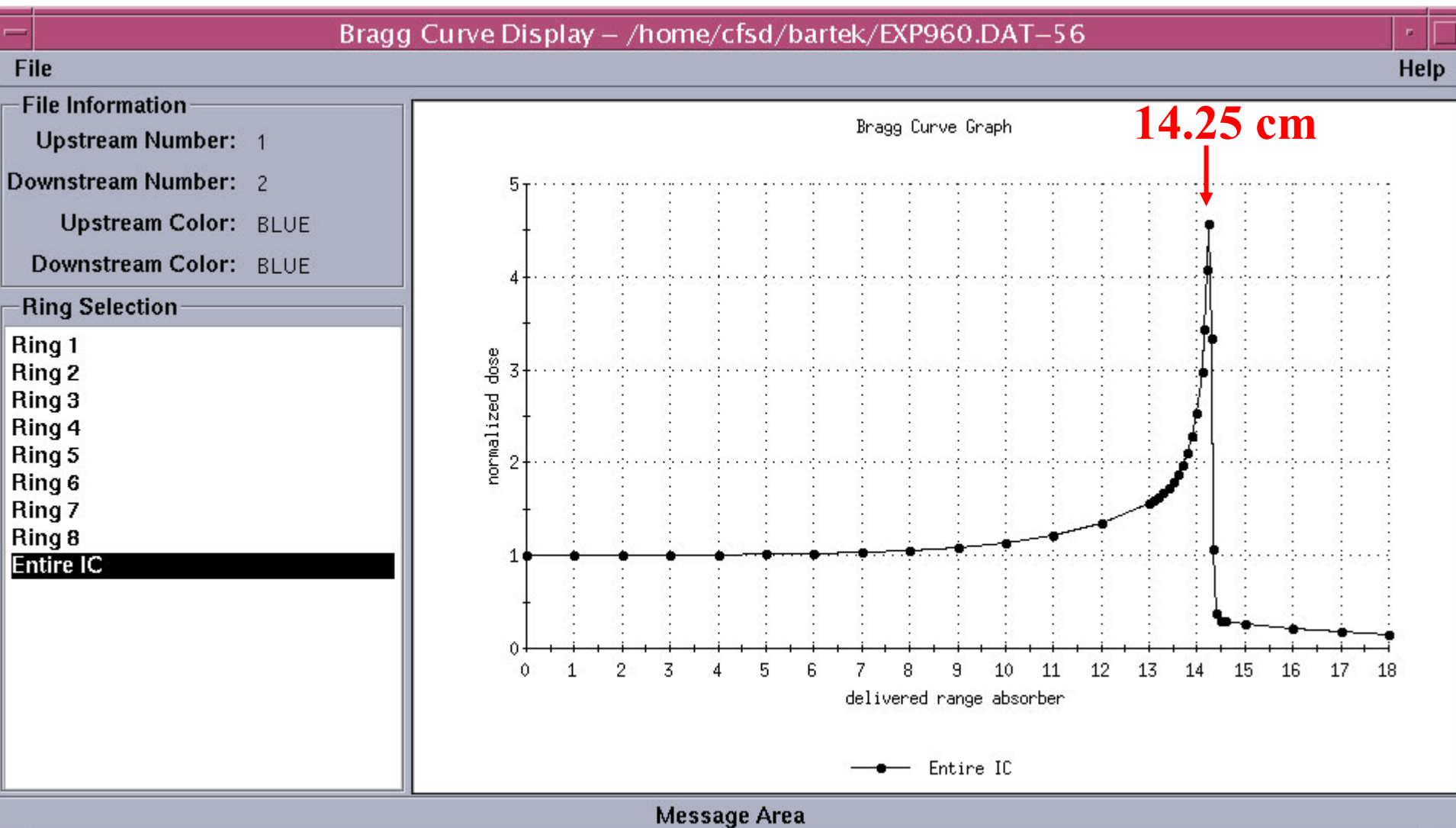
- ❖ All equipment installed and integrated. Nearly all is working.
- ❖ Most routines exercised.
- ❖ Interface with accelerator working.



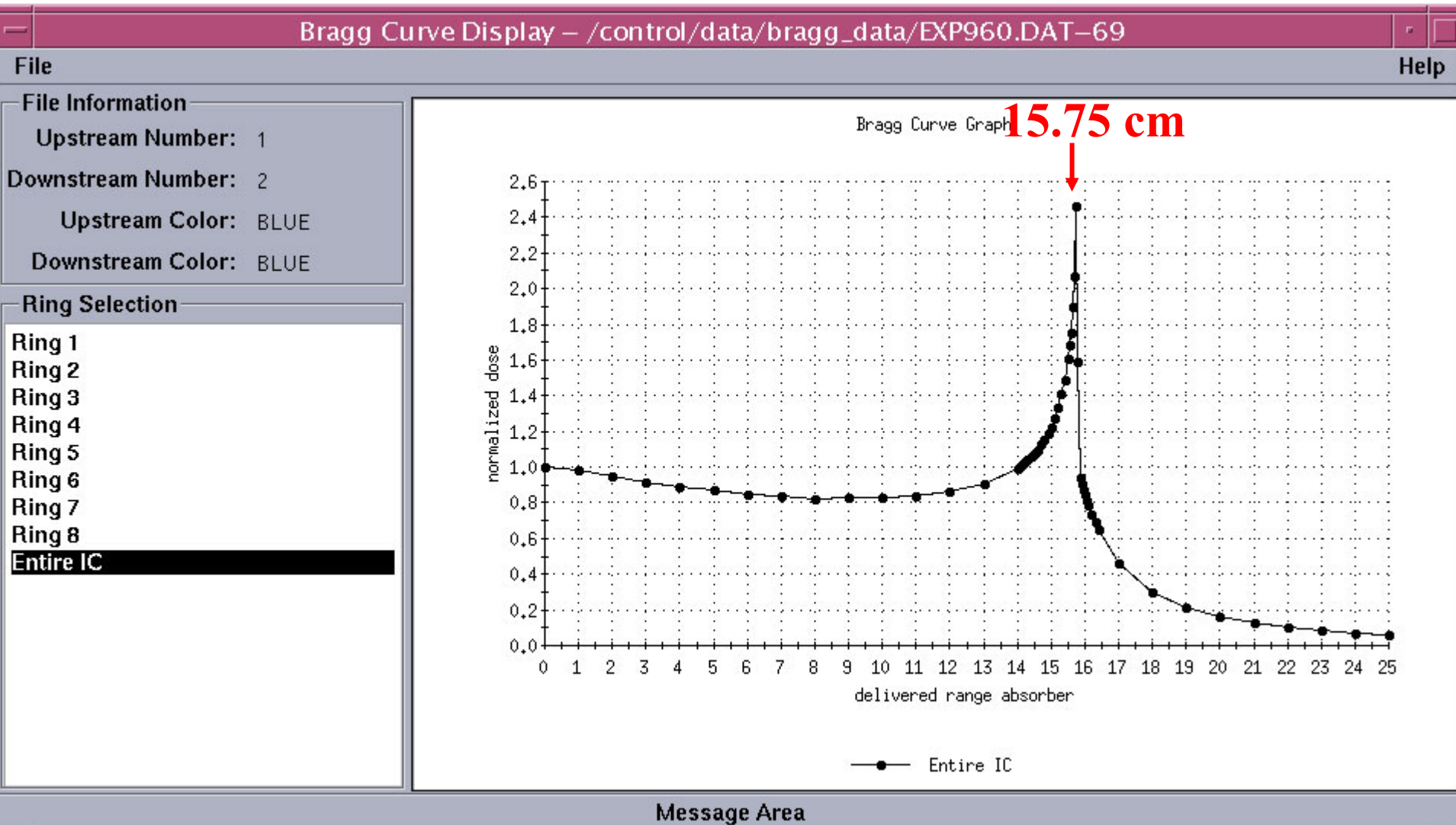




# Bragg Curve $^{12}\text{C}$ at what appears to be 272 MeV/n



# Bragg Curve $^{56}\text{Fe}$ at what appears to be 696 MeV/n



## Left to Do

- ❖ Extract C at 290 MeV/n, Fe at 1 GeV/n. The latter must wait for the foil-wheel repair.
- ❖ RF cutoff implementation.
- ❖ More beam optics and characterization.
- ❖ Finish commissioning the dosimetry system: last ion-chamber, exercise the calibration routines.
- ❖ General “digging out the bugs”.